

Claims:

1. A process for the production of a valve metal oxide powder by continuous reaction of a fluoride-containing valve metal compound with a base in the presence of water and calcination of the resultant product, characterised in that the reaction is performed in just one reaction vessel and at a temperature of at least 45°C.
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2. A process according to claim 1, characterised in that the residence time in the reaction vessel is between 30 minutes and 3 hours.
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3. A process according to claim 1 or claim 2, characterised in that the fluoride-containing valve metal compound and the base used are in each case used in the form of an aqueous solution or suspension.
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4. A process according to any one of claims 1 to 3, characterised in that the fluoride-containing valve metal compound is H_2NbF_7 or H_2TaF_7 .
5. A process according to any one of claims 1 to 4, characterised in that ammonia, alkali metal hydroxide or alkaline earth metal hydroxide is used as the base.
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6. A process according to claim 5, characterised in that aqueous ammonia solution with an ammonia concentration of 3 to 15 wt.% is used as the base.
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7. A process according to any one of claims 1 to 6, characterised in that the reaction of the fluoride-containing valve metal compound with the base is performed at a pH value, measured at reaction temperature, of 7 to 14.
- 30 8. A spherical valve metal oxide powder with an average particle diameter D_{50} , determined by MasterSizer to ASTM B 822, of 10 to 80 μm , characterised in

that the BET surface area, determined by the N₂ 3-point method according to ASTM D 3663, is at least 10 m²/g.

9. A valve metal oxide powder according to claim 8, characterised in that the
5 valve metal oxide is a niobium or tantalum oxide.

10. A valve metal oxide powder according to claim 9, characterised in that the
valve metal oxide is Nb₂O₅ or Ta₂O₅.